

SITE SPECIFIC PROJECT PLAN FOR:
Lower Mohawk River Stream Restoration Planning

Operated Under:
Generic QAPP for Stream Morphology Data Collection
RFA# 03285
(June 17, 2003)

Final Draft
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3- Distribution List

Table 1 lists people who will receive copies of the approved Site Specific Project Plan (SSPP) under the *Generic Quality Assurance Project Plan for Stream Morphology Data Collection* dated June 17, 2003.

Table 1. SSPP Distribution List

SSPP Recipient Name	Project Role	Organization	Telephone number and e-mail address
John Field	Technical Project Manager	Field Geology Services	207-491-9541 jfield@field-geology.com
Sharon Francis	Project Manager	Connecticut River Joint Commissions	603-826-4800 sharonf@mvgalaxy.com
Michael Chelminski	Project Assistant	Woodlot Alternatives	207-729-1199 mchelminski@woodlotalt.com
Eric Williams	Program Manager	NHDES, Watershed Management Bureau	603-271-2358 ewilliams@des.state.nh.us
Jillian McCarthy	Program QA Coordinator	NHDES, Watershed Management Bureau	603-271-8475 jmccarthy@des.state.nh.us
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Warren Howard	USEPA Project Manager	USEPA New England	617-918-1587 Howard.Warren@epa.gov

4- Project Task Organization

Figure 1 outlines the organization structure of the project personnel.

Figure 1. Project Organizational Chart

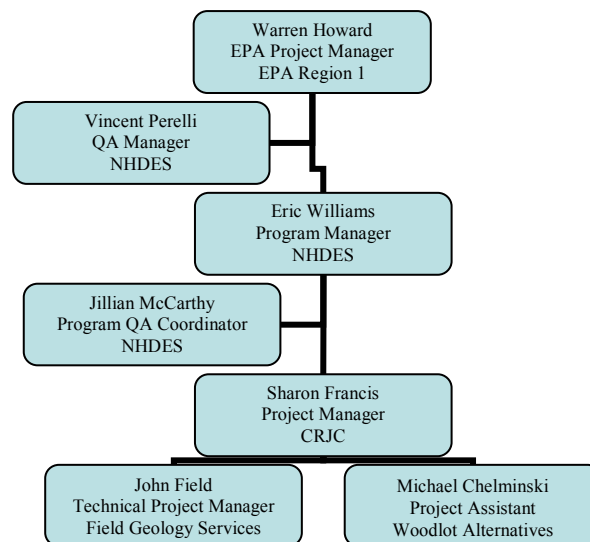


Table 2 identifies the roles and responsibilities of those individuals involved in the project.

Table 2. Personnel Responsibilities and Qualifications

Name and Affiliation	Responsibilities	Qualifications
Sharon Francis, CRJC	Project Manager	Trained in data management and experienced project manager
John Field, Field Geology Services	Technical Project Manager Project QA/QC Officer	Trained in stream morphology data collection, analysis, interpretation, and stream survey techniques
Michael Chelminski, Woodlot Alternatives	Project Assistant	Master's degree in hydraulic modeling
Jillian McCarthy, NHDES, Watershed Management Bureau	Reviews QAPP preparation and other QA/QC activities	On file at NHDES
Eric Williams, NHDES, Watershed Management Bureau	Reviews and oversees projects funded by DES 319 Restoration Grants in Connecticut, Saco, and Androscoggin watersheds.	On file at NHDES
Vince Perelli, NHDES Planning, Prevention & Assistance Unit	Reviews and approves QAPPs	On file at NHDES
Warren Howard, US EPA Region I	EPA Project Manager	On file at US EPA

5-Site Information

This project will be undertaken on the lower Mohawk River in Colebrook, NH. The project site will cover the lower 1,200 feet of the Mohawk River before it enters the Connecticut River. Twenty-one acres of the adjacent alluvial fan are also encompassed within the project study area, where side channels abandoned by channel straightening in the 1960's will potentially be reactivated. Sediment delivery from the Mohawk River watershed is high. The channel straightening at the project site, channel armoring through much of Colebrook, and straightening for large lengths of the river upstream are resulting in increased sediment inputs to the Connecticut River. Immediately downstream of the Mohawk confluence is the Colebrook Industrial Park where bank erosion threatens existing structures and riparian and aquatic habitat. Since the cause of erosion at the Industrial Park is excess sediment delivery from the Mohawk River, long-term success of restoration efforts at the Park depend on reducing these sediment inputs. Hydraulic modeling on the lower Mohawk River will determine the feasibility of reopening side channels to limit sediment inputs into the Connecticut River.

6-Project Rationale

A. Problem Definition

The purpose of this project is twofold: 1) determine the amount of sediment reduction that would occur with the placement of engineered woody debris jams on the lower Mohawk River and 2) identify changes in flow velocities, depths, and extents that would occur with the placement of debris jams.

The *Fluvial Geomorphology Assessment of Northern Connecticut Tributaries* completed in January 2006 identified sediment inputs from the lower Mohawk River as a major cause of erosion problems at the Colebrook Industrial Park just downstream of the tributary confluence. The 2005 assessment report is on file at the New Hampshire Department of Environmental Services. A bioengineering project at the industrial park was completed in June 2006 to provide short-term bank stabilization while a feasibility study is conducted to determine the potential for sediment storage on the Mohawk River alluvial fan immediately upstream of the industrial park. Tributary inputs to the Connecticut River have increased considerably since the lower Mohawk River was straightened in the 1960's. The excessive sediment loading has resulted in bank erosion, formation of unvegetated gravel bars, and braided flow conditions, all factors leading to degraded aquatic habitat.

B. Historical Data

Previous longitudinal profile and cross section data collected for the *Fluvial Geomorphology Assessment of Northern Connecticut Tributaries* will be used as baseline data for project monitoring on the lower Mohawk River. Cross sections on the lower Mohawk River taken during the 2005 assessment will be combined with additional cross sections to be surveyed as part of the restoration planning on the lower Mohawk River. The 2005 surveys were completed following the same procedures outlined in the *Generic Quality Assurance Project Plan for Stream Morphology Data Collection* dated June 17, 2003. Any new surveys conducted will also follow the same procedures as those conducted in 2005. Historical aerial photographs acquired at the Natural Resources Conservation Service's Field Office in Lancaster, NH will be used to identify changes in channel position and human land use during the past 50 years on the lower Mohawk River. Channel changes back to 1930 will be assessed using historical topographical maps available on-line at <http://docs.unh.edu/nhtopos/nhtopos.htm>.

7-Project Description and Schedule

The feasibility of restoring abandoned side channels on the lower Mohawk River will be assessed by conducting hydraulic modeling using data from topographic maps and collected in the field following the same procedures outlined in the *Generic Quality Assurance Project Plan for Stream Morphology Data Collection* dated June 17, 2003. As part of the 2005 assessment, an alternatives analysis was completed of 5 possible techniques for reducing sediment inputs into the Connecticut River and restoring bank stability on the Connecticut River where large growing gravel bars are diverting flows into the bank. The option to reactivate side channels on the lower Mohawk River was selected because of the potential to simultaneously reduce sediment inputs into the Connecticut River while improving aquatic habitat. Other alternatives, such as using bioengineering on the eroding banks, would provide bank protection, but would be effective only in the short term since the source of the sediment causing the problem would not be reduced. Dr. John Field completed the alternatives analysis and developed the conceptual design for reactivating the side channels on the lower Mohawk River.

The success of the restoration will be determined by monitoring the site over a three-year period following implementation. Three cross sections will be surveyed at the site immediately following project construction and compared with cross sections taken in the same locations during the 2005 assessment. The cross sections have been monumented at both ends with half-inch diameter rebar and plotted on aerial photographs to ease relocation of the same sites. Cross sections will be surveyed following the same procedures outlined in the *Generic Quality Assurance Project Plan for Stream Morphology Data Collection* dated June 17, 2003 and on file with NH DES. This will provide information on channel dimensions before and after project implementation. The cross sections will be resurveyed the first and second year after project implementation to determine if the amount of sediment storage on the lower Mohawk River has increased. Ground photographs will also be taken to provide visual documentation of the project and changes that occur for a two year period after its completion. These monitoring techniques were determined to be most suitable for this type of project as they will provide both quantitative and visual evidence of changes (or lack of changes) occurring along the lower Mohawk River after project implementation.

For the project tasks schedule, refer to the *2006 Watershed Restoration Grant Proposal for Lower Mohawk River Stream Restoration Planning*, Sections 20 and 21 on file at NHDES. The current proposal will assess only the feasibility of the proposed restoration with implementation scheduled for 2008 or 2009.

8-Final Products and Reporting

The final products for this project include the following:

- Survey data of existing morphological conditions on lower Mohawk River;
- Aerial photography and 2-foot topographic mapping of lower Mohawk River;
- Hydraulic modeling showing flow directions and velocity of current and proposed restoration conditions on lower Mohawk River;
- Final report with drafted cross sections, longitudinal profiles, substrate particle size analysis, and hydraulic modeling results for feasibility study of lower Mohawk River; and
- Semi-annual progress reports.

All products will be submitted by John Field, in both electronic and paper copies, to the NHDES Watershed Assistance Section for review and approval.

The final report will include a description of the environmental results and the measures of performance for this project: reductions in sediment loading; decreasing bank erosion rates; and increasing vegetation growth on bars. Reduction of sediments will ultimately result from the implementation of restoration project on the lower Mohawk River. Although implementation will occur as part of a future project, cross-sections surveyed as part of the feasibility study will be monumented for future monitoring. Ground photographs will be taken to provide the basis for “before and after” photographs to document vegetation growth on bars. The NHDES SOP for photo documentation, to be used for this project, is on file at NHDES. The cross sectional and longitudinal profile

data will also be used to calculate sediment loading during a bankfull event. This data will be used to compare with sediment loading calculated after restoration is complete.